

Title (en)  
FLUID DELIVERY APPARATUS AND METHOD

Title (de)  
FLÜSSIGKEITSABGABEVORRICHTUNG UND -VERFAHREN

Title (fr)  
APPAREIL ET PROCEDE DE DISTRIBUTION DE FLUIDE

Publication  
**EP 0954385 A4 20020123 (EN)**

Application  
**EP 97949555 A 19971125**

Priority  
• US 9721433 W 19971125  
• US 78602997 A 19970121

Abstract (en)  
[origin: WO9831475A1] A fluid delivery apparatus (10) and method is provided wherein either liquid or gaseous fluid is provided from fluid dispensers (17, 18), via nozzle plates (40) associated therewith, on each side of a path of travel of articles (11) being treated by the fluid, and wherein nozzle openings in nozzle plates cooperate with transverse groove(s) (67) to provide a screen flow of fluid extending transversely of the path of travel (22) of articles, and directed toward the articles. In the case of the fluid being a liquid, the nozzle openings provide cylindrical filament-like columns of liquid which are rendered by the associated grooves into flat, transversely disposed screen spray of liquid. In the case of the fluid being a gas, the nozzle openings and transverse grooves cooperate to deliver the gas in transversely spaced apart, transverse, planar zones of gas directed toward the path of article travel.

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**B05D 7/00**; **B08B 3/02**

IPC 8 full level  
**B05D 1/02** (2006.01); **B05B 9/00** (2006.01); **B05C 5/00** (2006.01); **B05C 11/00** (2006.01); **B05D 1/26** (2006.01); **B08B 3/02** (2006.01); **B08B 5/02** (2006.01); **C23F 1/08** (2006.01); **C25D 5/08** (2006.01); **F26B 21/00** (2006.01); **H05K 3/00** (2006.01); **H05K 3/06** (2006.01); **H05K 3/18** (2006.01); **H05K 3/26** (2006.01); **H05K 3/22** (2006.01)

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Citation (search report)  
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• [YA] FR 800697 A 19360716  
• [A] US 5524654 A 19960611 - NAKANO TERUYUKI [JP]  
• [A] PATENT ABSTRACTS OF JAPAN vol. 014, no. 211 (C - 0715) 2 May 1990 (1990-05-02)  
• See references of WO 9831475A1

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**WO 9831475 A1 19980723**; AT E269169 T1 20040715; CA 2275330 A1 19980723; DE 69729578 D1 20040722; DE 69729578 T2 20050609; EP 0954385 A1 19991110; EP 0954385 A4 20020123; EP 0954385 B1 20040616; HK 1025754 A1 20001124; JP 2002512555 A 20020423; US 5904773 A 19990518; US 6045874 A 20000404

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